Application Number: T1-00001 **Scientific Score**: 98

Title: [redacted] CIRM Training Program

Specific names of individuals and institutions are blacked out to preserve applicant confidentiality where possible.

Proposal Abstract as Submitted by Applicant

[redacted] is applying for three years of funding to establish an integrated CIRM Scholar training program in the fundamental biology of embryonic and adult stem cells. We aim to produce leaders who are positioned to understand basic stem cell mechanisms and to provide the fundamental and practical basis for the development of novel molecular and cellular therapies. We plan a 3 level Type I comprehensive training program with predoctoral (n=6), post-doctoral (n=5), and clinical fellows (n=5), for 16 concurrent CIRM Scholar positions. [redacted] offers outstanding opportunities for training both MD and PhD predoctoral students, Ph.D. postdoctoral fellows, and clinical fellows in stem cell biology, regenerative medicine, and human disease. With the School of Medicine, [redacted] Hospitals, and the University on one campus, [redacted] brings a powerful combination of assets to this mission. In addition, [redacted] faculty have extensive experience in basic research, clinical translation, and training in stem cell biology and medicine, including leading discoveries in tissue and organ stem cells, embryonic stem cells and cancer stem cells. We propose an integrated program of training that will bring together leading mentors and top trainees in basic science, engineering, and clinical medicine related to stem cells. The required coursework will include a new course on Social, Legal and Ethical Issues and Implications in Stem Cell Research, a new weekly colloquium alternating presentations of data by students and postdocs with seminars by [redacted] faculty and prominent outside invited speakers, and a course on basic science and clinical correlates in human disease. Special features of the training program will include cross-disciplinary co-mentors and, for PhD scholars, a two week clinical immersion focused on a relevant clinical problem, application, or disease that may be a possible future target for stem cell therapy. The courses, seminars, annual retreats, journal clubs, and data clubs planned as part of this training program in stem cell biology and regenerative medicine will serve as a catalytic resource for a much greater number of students, fellows, and basic science and clinical faculty across the disciplines, from Biochemistry to Law, Developmental Biology to Engineering, and Business to Medicine.

Benefit of this Program to California

This program will benefit the people and the state of California by providing high-quality training in the scientific, clinical, social, and ethical aspects of stem cell research to the scientists and clinicians who will develop and apply future therapies in this rapidly emerging field.

Summary of Review

This Type I proposal seeks to establish a training program that integrates the basic science of embryonic, adult, and nuclear transfer stem cell research with applications to human disease. There is a strong emphasis on cross-disciplinary training via the

participation of mentors with experience in both the clinical and basic science aspects of stem cell research. Scholars will have a primary research mentor, who works in stem cell biology and related problems, and will also be assigned a co-mentor who is a physician or physician-scientist with complementary interests. Required coursework will include an ethics course, a stem cell biology and technology course, and a course focused on human disease and translational opportunities. In addition, Ph.D. scholars will participate in a 2-week Clinical Rotation Immersion to further introduce them to translational opportunities in a clinical discipline that most closely relates to the trainee's research focus. The design of the training program and the integration of the components appear to be of the highest level. The program director has mentored 33 trainees in stem cell research and his experience as the director of an already established institute on stem cell biology uniquely positions this training program for successful achievement of its aims. An internal executive committee of 5 faculty members will select and oversee trainees and will meet monthly to discuss progress and future directions. The program director will report on a yearly basis to an external advisory committee consisting of internationally known leaders in the stem cell field. The program brings a contingent of mentors covering a broad range of fields in which they are internationally recognized as leaders and innovators. The application details the outstanding quality of the institution's pre-doctoral, post-doctoral, and clinical trainees who will compete for entry into this program. The institution offers perhaps one of the strongest environments in the world with a high level of institutional commitment, excellent quality of facilities, and appropriate stem cell-related research and training support.

Overall Strengths and Weaknesses

By all review criteria this application was deemed exceptional with the highest recommendation possible. The program is of high quality and well-integrated. The leadership and administrative support is strong and includes an internal executive committee and a committee of external advisors. The institution provides a strong environment that includes a hospital, medical school, and internationally-recognized tradition in both adult and embryonic stem cell research. No obvious weakness was evident.

Recommendations

Highly meritorious and recommended for funding.

	Pre	Post	Clinical	Total
Fellows Requested:	6	5	5	16
Fellows Recommended:	6	5	5	16

	Year 1	Total
Budget Requested:	$ 1,234,621	$ 3,733,707
Budget Recommended:	$ 1,234,621	$ 3,733,707